

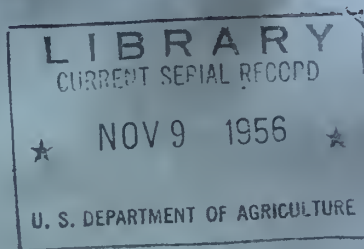
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Federal-State Cooperative
Snow Surveys and Water Supply Forecasts
for

Rio Grande Drainage Basin



SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
AND
COLORADO AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, National Park Service, State Engineers of Colorado and New Mexico and other Federal, State and local organizations.

—AS OF—
MAY 1, 1954

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY
AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge
River Forecast Center
U. S. Weather Bureau
712 Federal Office Building
Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office listed below:

Meteorologist in Charge.....	Pecos River in N. Mex.;
Weather Bureau Airport Station	Rio Grande and tributaries
Albuquerque, N. Mex.	at and above Elephant Butte
	Dam, N. Mex.

Rio Grande

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND WATER SUPPLY FORECASTS
for
RIO GRANDE

Issued

May 10, 1954

Report Prepared By
Homer J. Stockwell, Snow Survey Leader
and
Jack N. Washichek, Assistant Snow Survey Leader

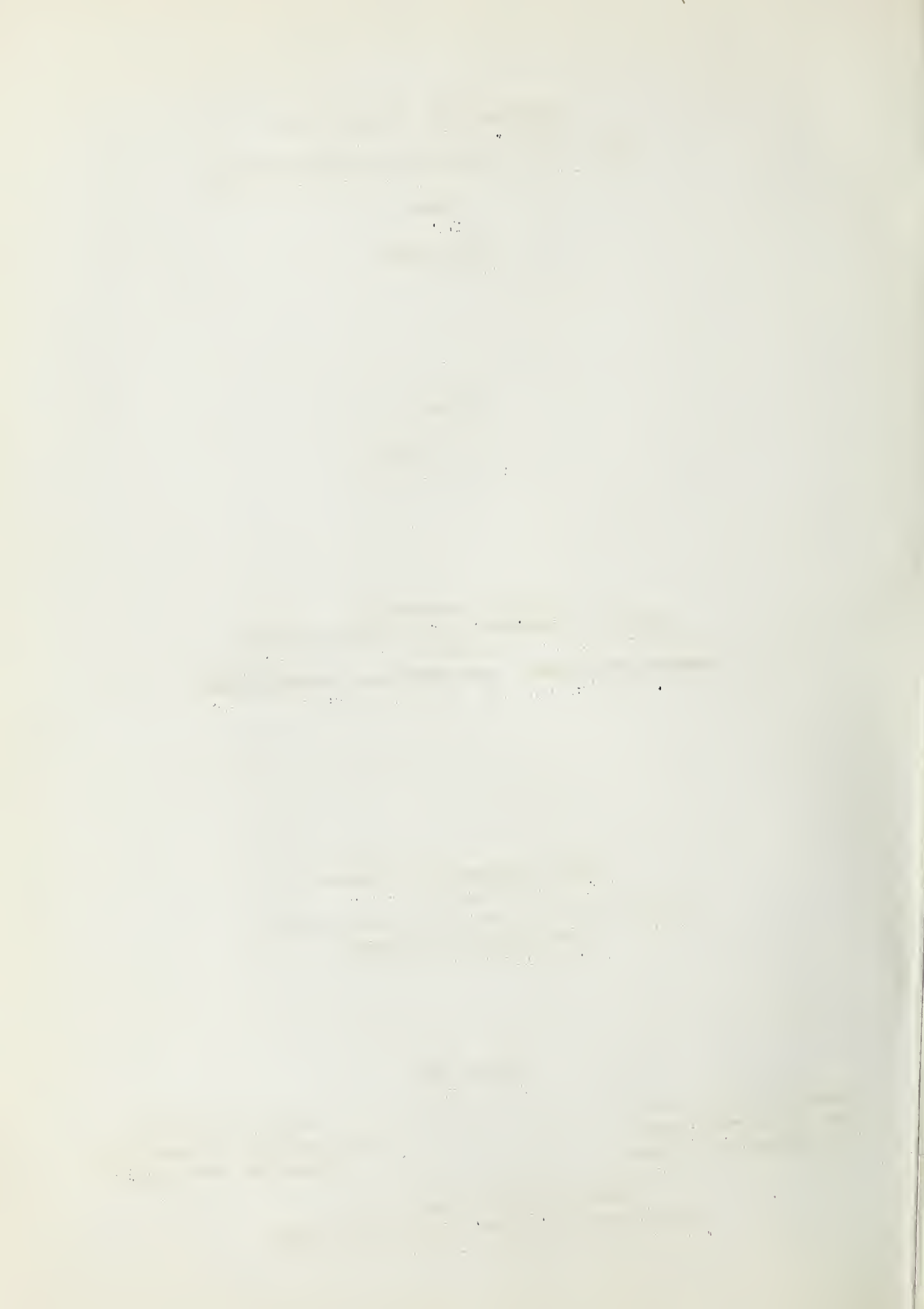
Soil Conservation Service
and
Colorado Agricultural Experiment Station
Fort Collins, Colorado

Issued By

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Soil Conservation Service

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State Engineer of New Mexico
Santa Fe, New Mexico

General Series Paper No. 577
Colorado Agricultural Experiment Station



WATER SUPPLY OUTLOOK
RIO GRANDE AND CANADIAN DRAINAGE BASINS
MAY 1, 1954

The water supply outlook for the Rio Grande in Colorado and New Mexico is for well below normal streamflow during the 1954 season. Snow melt was excessive during April and precipitation was below normal. Mountain soils are wet at elevations where there was sufficient snow to replace soil moisture deficiency. There is less water stored as snow on May 1 than for any year since snow surveys were started in 1936. Soil moisture conditions are fair in San Luis Valley and poor along the Rio Grande in New Mexico.

Snow water content measured on snow courses on the Rio Grande drainage in San Luis Valley was only 20 percent of normal for May 1. High elevation snow courses were measured at a record low for this date with the exception of the Summitville Mines course. Summer flow of the Rio Grande and its tributaries will be in the range of 60 to 70 percent of normal in San Luis Valley. This is similar to the years of 1950, 1951 and last year. Storage in irrigation reservoirs is much less than normal and a year ago. Current stream flow is less than average.

The water supply outlook along the Rio Grande in New Mexico is critically poor and perhaps the worst in relation to water demand than for any previous year. There are no snow surveys in New Mexico for May 1 but snowfall and precipitation has been short through the past winter months. Stream flow may be slightly higher than for some recent years of low flow. Reservoirs are practically empty and soils in irrigated areas are very dry. El Vado reservoir is nearly empty and peak flow storage will be limited.

Storage in Elephant Butte and Caballo Reservoirs totals about 125,000 acre-feet as compared to 375,000 on May 1, 1953 and is much less than average. The seasonal inflow to Elephant Butte will most probably not exceed 30 percent of the past 10 year average which is well below the long term normal. Soils in irrigated areas along the Rio Grande in Southern New Mexico and West Texas are dry.

Snow melt runoff on the Pecos River and on Canadian River tributaries will be very low. Net storage in Conchas Reservoir on the Tucumcari project is 153,000 acre-feet which is about the same as for May 1, 1953. The general water supply outlook is poor. Soil moisture conditions are reported as fair.

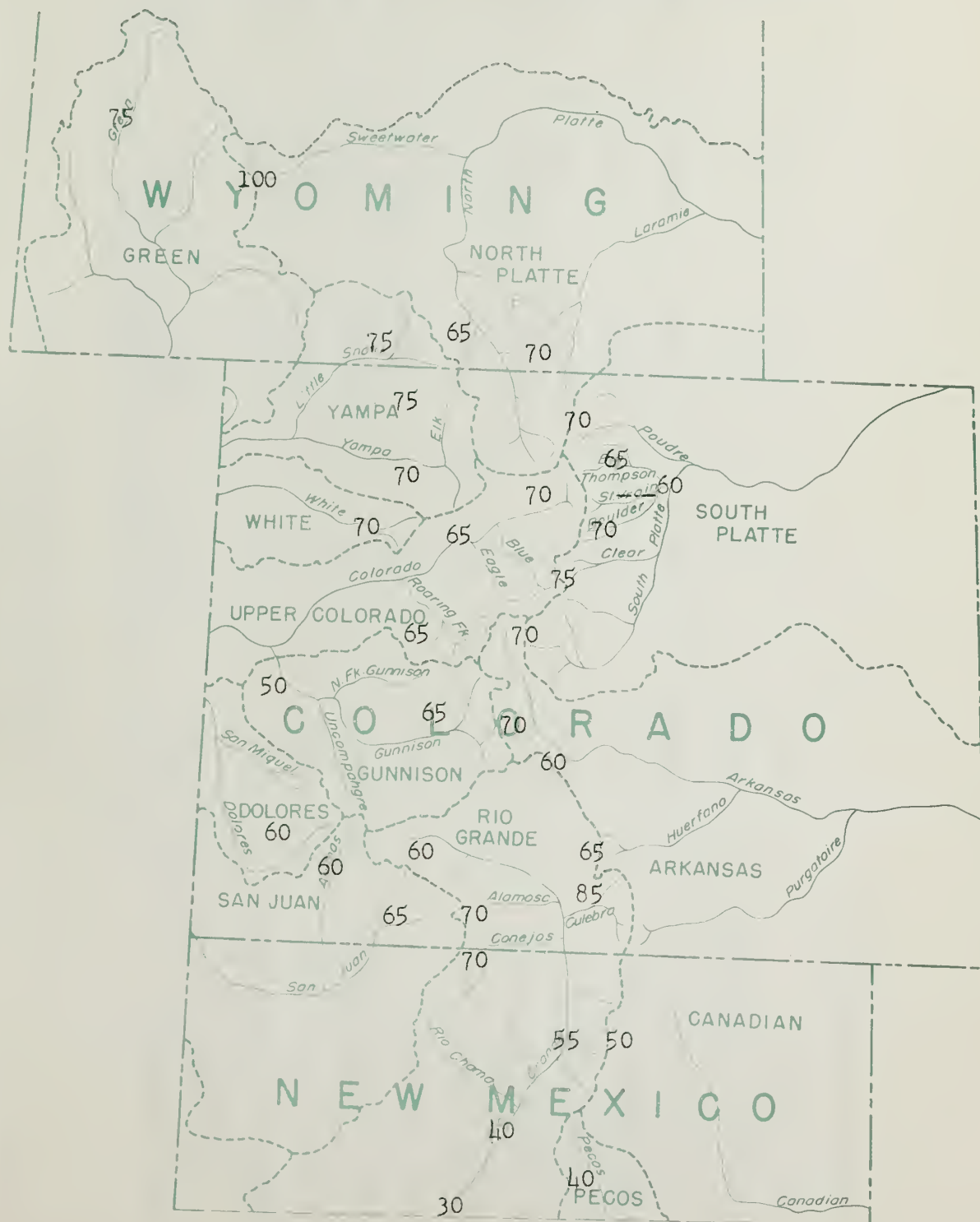
STREAM FLOW FORECASTS*

WATER FLOW ON THE WATERSHEDS OF PLATTE, ARKANSAS, UPPER COLORADO AND RIO GRANDE BASINS

BASED ON SNOW MELTING DATA FOR APRIL 15 TO MAY 15 DAY OF MONTH

In Percent of Normal for April-Sept. 1954

May 1, 1954



*Forecasts are approximate, Refer to stream flow forecast sheet.

RIO GRANDE DRAINAGE BASINS
STREAM FLOW FORECASTS, May 1, 1954

BASIN AND STREAM	Forecast 1954	April-Sept., % of 10-year average	Incl., Streamflow, Acre Feet		10-year avg. 1942-1951
			Measured Runoff 1952	1951	
RIO GRANDE					
South Fork at South Fork	80,000	61	207,100	64,000	131,000
Rio Grande at Del Norte	315,000	57	751,000	252,000	549,000
Alamosa above Terrace Res.	50,000	69	121,000	36,000	72,900
Conejos at Mogote	155,000	78	356,000	107,000	200,000
Culebra at San Luis	23,000	85	33,000	11,000	27,000
Rio Chama at Park View	130,000	66	272,000	86,000	198,000
Costilla at Costilla	18,000	54	36,000	15,000	33,200
Embudo Creek at Dixon	25,000	55	63,000	6,000	45,600
Rio Grande at Otowi Bridge	300,000*	41	1,167,400	201,000	724,000
Rio Grande at San Marcial	150,000	30	869,000	23,000	495,000
Pecos at Pecos	20,000	37	74,000	25,000	54,000

*Including change in storage in El Vado Res.

SNOW SURVEYS AND IRRIGATION WATER FORECASTS
RIO GRANDE BASIN

STATUS OF RESERVOIR STORAGE, May 1, 1954

STREAM	RESERVOIR	USABLE CAPACITY 1000 A.F.	1,000 A.F. Storage, May 1					10-yr. Avg. 1942-1951
			1954	1953	1952	1951		
RIO GRANDE	Rio Grande	45.0	7.0	17.6	2.6	5.1	17.7	
	Santa Maria	45.0	2.8	9.9	2.8	2.9	12.8	
	Sanchez	103.0	6.3	6.7	7.8	3.4	15.2	
	Terrace	17.7	2.0	6.3	3.4	1.8	4.4	
	Continental	26.7	5.6	6.3	6.9	5.0	11.4	
	Platoro	60.0	0.0	0.0	3.8	--	--	
	Flephant Butte	2273.7	90.6	233.6	53.9	196.8	920.7	
	Caballo	356.0	32.9	133.9	56.5	144.1	193.2	
CHAMA RIVER	El Vado	226.0	0.0	16.6	30.0	30.0	103.9	
CANADIAN RIVER	Conchas	600.0	153.0	146.4	201.2	268.3	335.8	
PECOS RIVER	Alamogordo	148.0		14.5	7.1	75.0	44.2	
	McMillan-Avalon	45.0		2.9	5.0	0.5	9.8	

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RIO GRANDE DRAINAGE BASIN SUMMARY OF MAY 1 SNOW SURVEYS AND
COMPARISON OF DATA WITH PREVIOUS YEARS
May 1, 1954

WATERSHEDS	No. of Courses Averaged	Years of Record	May 1, 1954 Water Contents as Percent of		
			1953	1952	Average
Rio Grande (Colo.)	18	5-18	54	11	21
Upper Rio Grande	3	15-18	32	1	11
Alamosa River	2	14-17	85	35	58
Conejos River	5	5-18	40	1	13
Culebra River	1	14	34	5	12

PRECIPITATION DATA

WATERSHED	STATE	Precipitation*	Departure	Precipitation*	Departure
		October 1 to April 30	from Normal	April	from Normal
		Inches	Inches	Inches	Inches
Canadian	New Mexico	4.32	-1.65	0.07	-1.19
Rio Grande	Colorado	3.21	-0.70	0.27	-0.55
Rio Grande(N)	New Mexico	5.97	-1.53	0.16	-1.13
Rio Grande(S)	New Mexico	1.22	-2.20	0.02	-0.45
Pecos	New Mexico	1.74	-2.88	0.20	-0.71

*Average of Selected High Elevation Stations

THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and change. From the first settlers to the present day, the nation has evolved through various stages of development. The early years were marked by exploration and settlement, followed by a period of rapid expansion and industrialization. The American Revolution and the Civil War were pivotal moments in the nation's history, shaping its identity and values. The 20th century brought significant social and political changes, including the rise of the American Dream and the challenges of the Cold War. Today, the United States continues to grow and adapt to a globalized world.

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Drainage Basin and Snow Course	No. and State	Elev.	Snow Cover Measurements						
			Date of survey	1954		Past Record			Years of Record
				Snow Depth (In.)	Water Content (In.)	Water Content(In.)			
						1953	1952	Average	
RIO GRANDE IN COLORADO									
Wolf Creek Pass	26 Colo.	10000	4/28	8.1	3.5	10.3	49.2	27.0	18
Upper Rio Grande	27 "	9350	5/1	0.0	0.0	0.0	2.8	2.1	18
Silver Lakes	47 "	9600	4/30	0.0	0.0	0.0	2.2	0.9	17
River Springs	49 "	9300	4/30	0.0	0.0	0.0	2.2	1.0	17
LaVeta Pass #2	74 "	9300	4/29	5.7	1.0	0.0	4.5	3.5	18
Summitville	76 "	11500	5/4	45.3	13.9	16.4	37.7	23.2	14
Cumbres Pass #2	77 "	10000	5/1	0.0	0.0	4.0	19.5	17.0	18
Santa Maria	80 "	9700	5/1	0.0	0.0	0.0	1.2	1.0	15
Culebra	82 "	10000	5/4	5.1	1.1	3.2	21.2	9.2	14
Ft.Garland	84 "	8200	4/30	0.0	0.0	0.0	0.0	0.5	14
Platoro	108 "	9950	4/29	3.5	1.2	3.8	30.5	13.3	5
West Conejos	109 "	9450	4/29	0.0	0.0	0.0	3.2	0.7	5
La Manga	110 "	10100	4/29	14.5	4.9	7.2	40.8	15.8	5
Pyramid	122 "	10300	4/30	0.0	0.0	1.1	10.6	4.6	5
Spr.Creek Pass	123 "	10900	5/3	3.8	1.0	4.3	13.9	6.8	5
Pool Table Mt.	124 "	10000	4/28	0.0	0.0	0.0	3.0	2.0	5
Lake Humphreys	125 "	9300	4/28	0.0	0.0	0.0	0.0	0.2	5
Cochetopa Pass	126 "	10000	4/30	0.0	0.0	0.0	4.5	2.3	5
Howardville	151 "	9800	4/29	0.0	0.0	3.6	15.2		3
Red Mt. Pass	153 "	11000	4/29	45.6	17.3	26.5	45.8		3
Porcupine	154 "	10400	5/3	0.0	0.0	2.7	14.1		3
Wolf Creek Summit	155 "	11000	4/28	53.6	20.8	19.1	51.7		3
UPPER RIO GRANDE									
Wolf Creek Pass	26 Colo.	10000	4/28	8.1	3.5	10.3	49.2	27.0	18
Upper Rio Grande	27 "	9350	5/1	0.0	0.0	0.0	2.8	2.1	18
Santa Maria	80 "	9700	5/1	0.0	0.0	0.0	1.2	1.0	15
ALAMOSA RIVER									
Silver Lakes	47 Colo.	9600	4/30	0.0	0.0	0.0	2.2	0.9	17
Summitville	76 "	11500	5/4	45.4	13.9	16.4	37.7	23.2	14
CONEJOS RIVER									
River Springs	49 Colo.	9300	4/30	0.0	0.0	0.0	2.2	1.0	17
Cumbres Pass #2	77 "	10000	5/1	0.0	0.0	4.0	19.5	17.0	18
Platoro	108 "	9950	4/29	3.5	1.2	3.8	30.5	13.3	5
West Conejos	109 "	9450	4/29	0.0	0.0	0.0	3.2	0.7	5
La Manga	110 "	10100	4/29	14.5	4.9	7.2	40.8	15.8	5
CULEBRA RIVER									

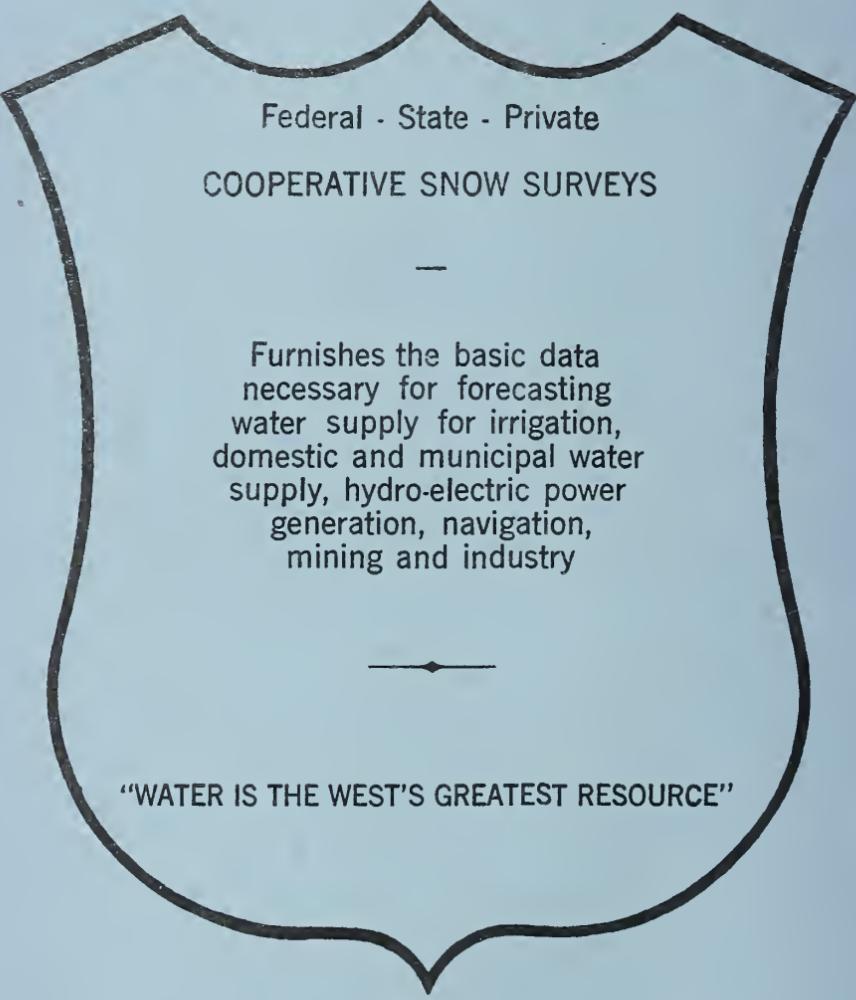
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